

CLAIMS

1. An electron emitting element (11, 21) of a structure in which a semiconductor layer (14, 24) is formed between an upper electrode (16, 26) and a lower electrode (13, 23), wherein an organic compound adsorption layer (15, 25) is formed on a semiconductor surface of said semiconductor layer (14, 24) by causing a organic compound to be adsorbed on the semiconductor surface.

2. The electron emitting element according to claim 1, wherein said semiconductor layer (14, 24) is made of silicon and a porous silicon semiconductor layer part or the whole of which is porous.

3. The electron emitting element according to claim 1, wherein said semiconductor layer (14, 24) is made of polysilicon and a porous polysilicon semiconductor layer part or the whole of which is porous.

4. The electron emitting element according to claim 1, wherein said organic compound is a non-cyclic hydrocarbon.

5. The electron emitting element according to claim 4, wherein said non-cyclic hydrocarbon is a straight-chain or branched non-cyclic hydrocarbon having 7 or more carbon atoms in a molecule.

6. The electron emitting element according to claim 4, wherein said non-cyclic hydrocarbon has at least one unsaturated bond in a molecule.

7. The electron emitting element according to claim 6, wherein said non-cyclic hydrocarbon having the unsaturated bond is a straight-chain or branched non-cyclic

hydrocarbon expressed by C_nH_{2n} (n: an integer ranging from 7 to 17).

8. The electron emitting element according to claim 1, wherein said organic compound is a compound obtained by coupling at least an aldehyde group to a non-cyclic hydrocarbon.

9. The electron emitting element according to claim 8, wherein said non-cyclic hydrocarbon is a straight-chain or branched non-cyclic hydrocarbon having 7 or more carbon atoms in a molecule.

10. The electron emitting element according to claim 8, wherein said compound obtained by coupling an aldehyde group to a non-cyclic hydrocarbon is a straight-chain or branched saturated aldehyde compound expressed by $C_nH_{2n+1}CHO$ (n: an integer ranging from 7 to 17).

11. The electron emitting element according to claim 8, wherein said compound obtained by coupling an aldehyde group to a non-cyclic hydrocarbon is a straight-chain or branched non-cyclic unsaturated aldehyde compound expressed by $C_nH_{2n-1}CHO$ (n: an integer ranging from 7 to 17).

12. An imaging device using, as a charger, an electron emitting element of a structure in which a semiconductor layer (14, 24) is formed between an upper electrode (16, 26) and a lower electrode (13, 23), and an organic compound adsorption layer (15, 25) is formed on a semiconductor surface of said semiconductor layer (14, 24) by causing a organic compound to be adsorbed on the semiconductor surface, wherein an electrostatic latent image carrier is charged by emitting electrons from said electron emitting element in the atmosphere.

13. An imaging device using, as a charge feed device, an electron emitting element of a structure in which a semiconductor layer (14, 24) is formed between an upper electrode (16, 26) and a lower electrode (13, 23), and an organic compound adsorption layer (15, 25) is formed on a semiconductor surface of said semiconductor layer (14, 24) by causing a organic compound to be adsorbed on the semiconductor surface, wherein a latent image is formed directly on an electrostatic latent image carrier by emitting electrons from said electron emitting element in the atmosphere.